RECEIVED
CENTRAL FAX CENTER

JAN 2 9 2007

Customer No.: 31561
Docket No.: 12304-US-PA
Application No.: 10/708,875

In the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (currently amended) A method of motion detection for a 3D comb filter video decoder, comprising:

sampling a composite video signal for obtaining a plurality of temporarily stored sampled data $F_mP_{x,y}$, wherein $F_mP_{x,y}$ represents a sampled data of a y^{th} pixel on an x^{th} line of an m^{th} frame in the composite video signal, and m, x, y are positive integers greater than or equal to 0; and

using $F_{m+1}P_{x,y}$, $F_mP_{x,y}$, $F_{m-1}P_{x,y}$, and $F_{m-2}P_{x,y}$ to determine a motion/still status of the composite video signal, comprising:

using $F_{m+1}P_{x,y}$, $F_mP_{x,y}$, $F_{m-1}P_{x,y}$, and $F_{m-2}P_{x,y}$ to calculate and obtain a plurality of max differences $MD_{x,y}$, wherein $MD_{x,y}$ represents a max difference of the y^{th} pixel on the x^{th} line;

averaging 4 max differences of the contiguous pixels selected to obtain a motion factor $MF_{x,y}$, wherein $MF_{x,y}$ represents a motion factor of the y^{th} pixel on the x^{th} line; and

detecting $MF_{x,y}$ to determine the motion/still status of the y^{th} pixel on the x^{th} line in the composite video signal.

Claim 2. (canceled)

Claim 3. (currently amended) The method of motion detection for a 3D comb filter video decoder of claim 12, wherein when it is determined that the composite video signal is a signal for an NTSC system, the step of sampling the composite video signal uses a frequency which is 4 times the subcarrier frequency in the composite video signal to sample the signal, and the signal is sampled when the subcarrier phase is equal to 0, 0.5π, π, and 1.5π.

Claim 4. (original) The method of motion detection for a 3D comb filter video decoder of claim 3, wherein $MD_{x,y}$ is calculated based on an equation:

$MD_{x,y} = \text{Max}\{ |F_mP_{x,y} - F_{m-2}P_{x,y}| , |F_{m+1}P_{x,y} - F_{m-1}P_{x,y}| \}$.

Claim 5. (currently amended) The method of motion detection for a 3D comb filter video decoder of claim 12, wherein when it is determined that the composite video signal is a signal for a PAL system, the step of sampling the composite video signal uses a frequency which is 4 times the subcarrier frequency in the composite video signal to sample the signal, and the signal is sampled when the subcarrier phase is equal to 0.25π, 0.75π, 1.25π, and 1.75π.

Claim 6. (original) The method of motion detection for a 3D comb filter video decoder of claim 5, wherein the step of calculating and obtaining $MD_{x,y}$ further comprises:

calculating and obtaining a plurality of luma differences $LD_{x,y}$, wherein $LD_{x,y}$ represents a luma difference of the y^{th} pixel on the x^{th} line, and is calculated based on an equation: $LD_{x,y} = | F_mP_{x,y} + F_{m-2}P_{x,y} - F_{m+1}P_{x,y} - F_{m-1}P_{x,y} |$;

calculating and obtaining a plurality of intermediate differences $IMD_{x,y}$,

wherein $IMD_{x,y}$ represents an intermediate difference of the y^{th} pixel on the x^{th} line, and is calculated based on an equation:

$IMD_{i,2j-1} = Max\{ | F_{m+1}P_{i,2j-1} - F_{m-2}P_{i,2j-1} | , | F_mP_{i,2j-1} - F_{m-1}P_{i,2j-1} | \}$; $IMD_{i,2j} = Max\{ | F_{m+1}P_{i,2j} - F_mP_{i,2j} | , | F_{m-1}P_{i,2j} - F_{m-2}P_{i,2j} | \}$; and

calculating and obtaining $MD_{x,y}$, which is calculated based on an equation:

$MD_{x,y} = a^* IMD_{x,y} + (1 - a)^* LD_{x,y}$;

wherein, a is a real number greater than 0 and less than 1, and i, j are positive integers.

Claim 7. (currently amended) The method of motion detection for a 3D comb filter video decoder of claim ~~1~~2, wherein the step of obtaining $MF_{x,y}$ further comprises:

averaging 4 max differences of the contiguous pixels selected to obtain a plurality of max differences $AMD_{x,h}$, wherein $AMD_{x,h}$ represents an average of max difference of a h^{th} pixel on the x^{th} line, h is a positive integer, and $AMD_{x,h}$ is calculated based on an equation:

$AMD_{x,h} = (MD_{x,h} + MD_{x,h+1} + MD_{x,h+2} + MD_{x,h+3}) / 4$; and

selecting a minimum from the averages of max difference to obtain a motion factor $MF_{x,y}$, wherein $MF_{x,y}$ represents a motion factor of the y^{th} pixel on the x^{th} line.

Claim 8. (original) The method of motion detection for a 3D comb filter video decoder of claim 7, wherein the step of selecting a minimum from the averages of max difference to obtain $MF_{x,y}$ is based on an equation:

$MF_{x,y} = \mathrm{Min}(AMD_{x,y}, AMD_{x,y-1}, AMD_{x,y-2}, AMD_{x,y-3})$.

Claim 9. (original) The method of motion detection for a 3D comb filter video decoder of claim 7, wherein the step of selecting a minimum from the averages of max difference to obtain $MF_{x,y}$ is based on an equation:

$MF_{x,y} = \mathrm{Min}(AMD_{x,y}, AMD_{x,y-3})$.

Claim 10. (currently amended) The method of motion detection for a 3D comb filter video decoder of claim 1~~2~~, wherein the step of detecting $MF_{x,y}$ to determine the motion/still status of the y^{th} pixel on the x^{th} line in the composite video signal further comprises:

providing a threshold; and

comparing $MF_{x,y}$ with the threshold, and when $MF_{x,y}$ is greater than the threshold, it is determined that the y^{th} pixel on the x^{th} line in the composite video signal is in the motion status, otherwise, the y^{th} pixel on the x^{th} line in the composite video signal is in the still status.

Claim 11. (original) The method of motion detection for a 3D comb filter video decoder of claim 10, wherein the motion factors $MF_{x,y}$ are the motion factors of the m^{th} frame.